



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

D. Bennett
MAR 31 1987

Superfund Branch

MAR 10 1987

OFFICE OF
SOLID WASTE AND EMERGENCY RESPONSE

MEMORANDUM

SUBJECT: RCRA "Special Study" Waste Definitions: Sites
That Require Additional Consideration Prior to
NPL Proposal Under the Superfund Amendments and
Reauthorization Act

FROM: Henry L. Longest II *Walter W. Kovalick for*
Director, Office of Emergency and Remedial Response

TO: Director, Waste Management Division
Regions I, IV, V, VII, and VIII
Director, Emergency and Remedial Response Division
Region II
Director, Hazardous Waste Management Division
Regions III and VI
Director, Toxics and Waste Management Division
Region IX
Director, Hazardous Waste Division
Region X

The purposes of this memo are to discuss Sections 105(g) and 125 of the Superfund Amendments and Reauthorization Act of 1986 (SARA) and, to the extent now possible, to outline the scope of these provisions by providing appropriate definitions. Both of these sections require that, until the Hazard Ranking System (HRS) is revised, the Agency evaluate additional data for sites at which "special wastes," as defined under the Resource Conservation and Recovery Act (RCRA), are present in significant quantities before these sites are proposed for the NPL.

This memo does not address the specific data and information needed to fulfill the additional requirements of Sections 105(g) and 125. We are in the process of developing guidance that will explain both the data needs and how the Agency will use the information to list special waste sites. We expect to issue this guidance in March/April 1987. Until it is available, we recommend that the Regions continue to work on developing HRS packages for such sites with the understanding that additional information acquisition may be necessary in the future.

It must be understood that, with only minor exceptions, neither RCRA nor CERCLA includes precise definitions of the wastes covered by these provisions, and the interpretations

AR 10.1 0002

6348

given in this memo could change at some future point. It is unlikely, however, that such changes will occur prior to the promulgation of the HRS.

The information contained below has been reviewed by all Offices within OSWER and by the Office of General Counsel.

SARA SECTION 105(g)

Section 105(g) of SARA applies to sites that, (1) were not on or proposed for the NPL as of October 17, 1986, and (2) contain significant quantities of "special study" wastes as defined under Sections 3001(b)(2), 3001(b)(3)(A)(ii), and 3001(b)(3)(A)(iii) of RCRA. For these sites, SARA requires that the following information be considered prior to proposal for the NPL:

- (A) the extent to which the Hazard Ranking System (HRS) score for the facility is affected by the presence of the special study waste at, or released from, the facility.
- (B) available information as to the quantity, toxicity, and concentration of hazardous substances that are constituents of any special study waste at, or released from, the facility; the extent of or potential for release of such hazardous constituents; the exposure or potential exposure to human population and the environment, and the degree of hazard to human health or the environment posed by the release of such hazardous constituents at the facility.

The relevant paragraphs of RCRA are defined below:

(1) RCRA Section 3001(b)(2)(A): "Drilling fluids, produced waters, and other wastes associated with the exploration, development, or production of crude oil or natural gas or geothermal energy..."

The Office of Solid Waste drafted a technical report on wastes from the exploration, development and production of crude oil, natural gas, and geothermal energy, dated October 31, 1986. In this report, EPA made some tentative determinations as to which wastes are subject to the oil and gas exemption. To make these determinations, EPA relied on RCRA's language and the legislative history to develop tentative criteria for determining which wastes are included. These criteria appear below:

1. Only waste streams intrinsic to the exploration for, or development and production of, crude oil, natural gas, or geothermal energy are exempt. Waste streams generated at oil, gas, and geothermal energy facilities that are not uniquely associated with exploration, development, or production activities are not exempt (one example would be spent solvents from equipment cleanup).

2. Exempt wastes must be associated with "extraction" processes, which include measures (1) to remove oil, natural gas, or geothermal energy from the ground or (2) to remove impurities from such substances, provided that the purification process is an integral part of normal field operations.
3. The proximity of waste streams to primary field operation is a factor in determining the scope of the exemption. Process operations that are distant from the exploration, development, or production operations may not be subject to exemption.
4. Wastes associated with transportation are not exempt. The point of custody transfer, or of production separation and dehydration, may be used as evidence in making this determination.

In its report, the Agency noted that these determinations may not address all exempted wastes and solicited comment on its findings. The following wastes were tentatively classified as exempt under this section (i.e., special study wastes):

Oil and Gas

- ° drilling media
- ° drill cuttings
- ° well completion, treatment, and stimulation fluids
- ° packing fluids
- ° produced waters
- ° produced sand
- ° workover fluids
- ° field tank bottoms
- ° waste crude oil and waste gases from field operations
- ° waste triethylene glycol used in field operations

Geothermal Energy

- ° drilling media and cuttings
- ° reinjection well fluid wastes
- ° precipitated solids from brine effluent
- ° settling pond wastes
- ° piping scale and flash tank solids (except for those associated with electrical power generation)

Further information on oil, gas, and geothermal wastes can be found in the 10/31/86 report.

(2) RCRA Section 3001(b)(3)(A)(iii): "Cement kiln dust waste"

This category of wastes is fairly self-explanatory and has not been controversial. Cement kiln dust is the material that goes up the stack as a result of fuel combustion and the commingling of the cement additives. The dust is collected either in a baghouse or in an electrostatic precipitator. The collected dust is a high volume waste that is strongly alkaline. Cement kiln dust is usually disposed of in on-site landfills or by land reclamation.

(3) RCRA Section 3001(b)(3)(A)(ii): "Solid waste from the extraction, beneficiation, and processing of ores and minerals, including phosphate rock and overburden from the mining of uranium ore"

"Extraction," in the context of RCRA, refers to the beginning or front-end operations associated with mining, including the removal of overburden in surface mines, quarrying, and other forms of collecting raw materials that contain economic concentrations of elements (ore). "Overburden" is the general term for wastes resulting from extraction operations in surface mines. Other examples of extraction operations are: dredging of placer deposits or beach sands, cutting or blasting whole rock from surface quarries, and removal of rock to construct underground tunnels. It should be noted that one form of extraction, in-situ mining, was excluded from RCRA solid waste coverage in 40 CFR 261.4(a)(5), and is not, therefore, a "special study waste."

"Beneficiation" refers to processes used to concentrate the extracted ores or minerals. This can be accomplished with simple physical processes such as crushing, screening, and washing. Beneficiation can also involve chemical processes such as leaching of metallic elements (e.g., copper, silver, gold) from ore or mill tailings using acid or cyanide solutions.

Industry uses the term "milling" to refer to most of the above operations. This term comes from the most common process in beneficiation, that of breaking, crushing, grinding, and screening the rock in large rotating rod and ball mills. Mill tailings are the most common wastes from beneficiation.

For more information on the above two categories of mining waste, the reader is referred to, "Report to Congress: Wastes from the Extraction and Beneficiation of Metallic Ores, Phosphate Rock, Asbestos, Overburden from Uranium Mining, and Oil Shale." (EPA/530-SW-85-033, December 1985)

"Processing" generally includes operations that further refine or purify the product being mined beyond the beneficiation step. "Processing" is the term associated with the RCRA mining waste exclusion that has caused the most confusion and regulatory uncertainty. In 1980, EPA stated in the preamble to the hazardous waste standards that the term "processing" included the smelting and refining of ores and minerals. The Agency stated at that time, however, that it was not sure that this interpretation was consistent with the intent of Congress and that the issue would be addressed in future rulemaking. On October 2, 1985, the Agency proposed to retract its inclusion of smelting and refining in the mining waste exclusion, with the exception of a few large volume processing wastes (see Attachment I). The proposed rule was withdrawn on October 9, 1986 (see Attachment II).

At the present time, therefore, the term "processing" is broadly interpreted to include most post-beneficiation processes, specifically including smelting and refining of ores and minerals. It may be difficult to determine at what point processing ends and fabrication or manufacturing begins. Generally, wastes that result from combining the mineral product with another material (e.g., alloying) or from fabrication (a change in shape that does not cause a change in chemical composition) are not "special study" (i.e. "processing") wastes, although exceptions may exist.

SARA SECTION 125

This section applies to facilities that were neither on nor proposed for the NPL on the date of enactment of SARA and which contain "substantial volumes" of waste described in Section 3001(b)(3)(A)(i) of RCRA. Until the HRS is revised, these sites may not be included on the NPL "on the basis of an evaluation made principally on the volume of such waste and not on the concentration of the hazardous constituents of such waste."

RCRA Section 3001(b)(3)(A)(i): "Fly ash waste, bottom ash waste, slag waste, and flue gas emission control waste generated primarily from the combustion of coal or other fossil fuels."

The temporary RCRA exemption for fossil fuel combustion wastes noted above includes all fly ash, bottom ash, boiler slag, and flue gas emission control waste resulting not only from the combustion of coal, but also from combustion of oil, natural gas, and coke. The fossil fuel component must be over 50% of fuel mix for the exemption to apply. These waste materials are included whether generated by electric utility generating plants or by industrial and commercial facilities.

When fossil fuels are burned, the noncombustible materials are converted to ash. The proportion of noncombustible material in coal is referred to as the ash content. (Petroleum also contains ash, but in far smaller quantities). The smaller ash particles entrained by the flue gas are referred to as fly ash and are produced in varying degrees by all plants. Larger ash particles that settle on the bottom of the boiler will form either bottom ash or boiler slag, depending on the furnace design. Another waste product, called FGD (scrubber) sludge, is generated when sulfur dioxide (formed from the burning of sulfur present in the coal) is removed from other flue gases. This removal process, which is required by environmental regulations for some power plants, is usually accomplished with a flue gas desulfurization (FGD, or scrubber) system.

Although these definitions are rather broad, we hope that this information will assist you in identifying sites that may fall under the relevant sections of SARA. We also solicit your input on the scope of the terms contained in this memo and will modify them in the future if appropriate.

We appreciate your assistance in this matter and expect to work closely with your staff to resolve any problems. If your staff has site specific questions, they should call Ms. Ann Sarno, of my staff, at FTS-382-4485.

cc: Dennis Huebner, Region I	Bob Hanneschlager, Region VI
John Czapor, Region II	Robert Morby, Region VII
Bob Wayland, Region III	Bill Geise, Region VIII
Richard Stonebraker, Region IV	Keith Takata, Region IX
Richard Bartelt, Region V	Robert Courson, Region X

NPL Coordinators, Regions I-X

bcc: Meg Silver, OGC
Susan Schmedes, OGC
Ephraim King, OGC
Ellen Siegler, OWPE
Ginny Steiner, OWPE
Truett DeGeare, OSW
Dan Derkics, OSW
Rob Walline, Region VIII

ATTACHMENT I

FEDERAL REGISTER

10/2/85

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 261

(SWH-FRL 2871-7)

Mining Waste Exclusion

AGENCY: Environmental Protection Agency.

ACTION: Notice of proposed rulemaking.

SUMMARY: On October 21, 1980, Congress enacted Pub. L. 96-482 which included various amendments to the Resource Conservation and Recovery Act (RCRA). Section 7 of these revisions (the "Bevill Amendment") excluded "solid waste from the extraction, beneficiation, and processing of ores and minerals" from regulation under Subtitle C of RCRA pending completion of studies called for in Sections 8002(f) and (p) of RCRA. On November 19, 1980, EPA amended its regulations to reflect this exclusion (45 FR 76618). In the preamble to that rulemaking, EPA tentatively interpreted the exclusion to encompass "solid waste from the exploration, mining, milling, smelting, and refining of ores and minerals" (45 FR 76619). Today's proposed rulemaking, if promulgated as a final rule, would eliminate from the mining waste exclusion many wastes from processing ores and minerals (other than phosphogypsum, bauxite refining muds, primary metal smelting slags, and slag from elemental phosphorus reduction) and would relist six smelting wastes previously listed as hazardous. EPA believes that this revised interpretation more accurately represents the intent of Congress when it enacted the mining waste exclusion and best serves the policy objectives of RCRA.

DATE: EPA will accept public comments on this proposal until December 2, 1985.

The Agency will hold a public hearing on November 14, 1985; see "SUPPLEMENTARY INFORMATION" section for details.

ADDRESSES: Comments should be sent to the Docket Clerk, Office of Solid Waste (WH-565A), U.S. Environmental Protection Agency, 401 M Street SW., Washington, DC 20460. The public docket for this proposal is available in Room S212 at the above address for viewing from 9:00 a.m. to 4:00 p.m., Monday through Friday, excluding holidays. The public hearing is in Washington, DC at the Department of Health and Human Services, North Auditorium, 330 Independence Avenue SW. Attendees should use the "C" Street entrance.

FOR FURTHER INFORMATION CONTACT: RCRA/Superfund Hotline at (800) 424-9346 or 382-3000. For technical information contact Dr. Dexter Hinckley, U.S. Environmental Protection Agency, Office of Solid Waste (WH-565), 401 M St. SW., Washington, DC 20460, (202) 382-2791.

SUPPLEMENTARY INFORMATION:

Preamble Outline

- I. History of Mining Waste Exclusion
- II. Analysis of Options Available
- III. Proposed Relisting of Smelting Wastes

- A. General
- B. Wastewater Treatment Sludges
- C. Wastes That Are Recycled
- IV. Analysis of Economic Effects of the Proposed Reinterpretation
 - A. Scope and Coverage of Economic Analysis
 - B. Methodology and Data Gathering for the Ten-Sector Study
 - C. Costs of Compliance for Ten Major Sectors
 - D. Economic Impacts for the Ten Major Sectors
 - E. Screening Study Conclusions for 21 Other Metal Sectors
- V. Public Participation
- VI. Regulatory Flexibility Analysis
- VII. Effect on State Authorizations
- VIII. Compliance with Executive Order 12291
- IX. Paperwork Reduction Act
- X. List of Subjects in 40 CFR Part 261

I. History of Mining Waste Exclusion

In Section 8002(f) of the Resource Conservation and Recovery Act (ACRA) of October 21, 1976, Congress instructed the Administrator to conduct, in consultation with the Secretary of the Interior, "a detailed and comprehensive study on the adverse effects of solid wastes from active and abandoned surface and underground mines on the environment, including, but not limited to, the effects of such wastes on humans, water, air, health, welfare, and natural resources."

On December 18, 1978 (43 FR 58,946), EPA proposed regulations for hazardous waste management under Subtitle C of RCRA. These proposed regulations, among other things, had fewer requirements for a universe of so-called "special waste" that are generated in large volumes, were thought to pose less of a hazard than other hazardous wastes, and were not thought to be amenable to the control techniques proposed for hazardous waste treatment, storage and disposal facilities. EPA identified waste materials from the "extraction, beneficiation, and processing of ores and minerals" as special wastes under the proposed regulations.

On May 19, 1980 and July 16, 1980, EPA listed as hazardous eight waste streams from primary metal smelters. Also on May 19, 1980, when it

promulgated the final hazardous waste management regulations, EPA stated that a "special waste" category was unnecessary because: (1) the EP toxicity and corrosivity characteristics of hazardous waste had been narrowed, thus excluding most "special wastes" from control, and (2) the Agency intended to promulgate tailored standards for land disposal, as needed, in future regulations.

On October 21, 1980, Congress enacted Pub. L. 96-482 which included various amendments to RCRA. Section 8002 was amended to include subsection (p), which requires the Administrator to study the adverse effects on human health and the environment, if any, of the disposal and utilization of "solid waste from the extraction, beneficiation, and processing of ores and minerals, including phosphate rock and overburden from the mining of uranium ore." Section 7 of these amendments (the "Bevill Amendment") amended Section 3001 of RCRA to exclude these wastes from regulation under Subtitle C of RCRA pending completion of the studies called for in Sections 8002(f) and (p).

On November 19, 1980, EPA published an interim final amendment to its hazardous waste regulations to reflect the mining waste exclusion. The regulatory language incorporating the exclusion is identical to the statutory language (except the phrase "including coal" was added). In the preamble to the amended regulation, however, EPA tentatively interpreted the exclusion to include "solid waste from the exploration, mining, milling, smelting, and refining of ores and minerals" (emphasis added). (45 FR 76118, 76619).

For consistency with this interpretation in the November 19, 1980 amendment, the Agency also amended 40 CFR Part 261 to suspend the listings of specific waste streams associated with smelting as hazardous wastes (46 FR 4614, January 16, 1981 and 46 FR 27473, May 20, 1981). These waste streams are associated with the primary copper, lead, zinc, aluminum, and ferroalloy industries (see Table 1).

In the November 19, 1980 notice, EPA made it clear that it intended to reconsider ("over the next 90 days") its interpretation of the exclusion:

The Agency fully intends to consider the appropriate scope of the statutory exclusion and may well take rulemaking action to lessen the scope of the exclusion. . . . In particular, EPA questions whether Congress actually intended to exclude . . . wastes generated in the smelting, refining, and other processing of ores and minerals that are further removed from the mining and beneficiation of such ores and minerals.

TABLE 1.—SMELTER WASTES LISTED AS HAZARDOUS

Industry	EPA hazardous waste No.	Hazardous waste	Hazard code
Primary copper	K064	Acid plant blowdown slurry/sludge resulting from the thickening of blowdown slurry from primary copper production.	(T)
Primary lead	K065	Surface impoundment solids contained in and dredged from surface impoundments at primary lead smelting facilities.	(T)
Primary zinc	K066	Sludge from treatment of process wastewater and/or acid plant blowdowns from primary zinc production.	(T)
	K067	Electrolytic anode slimes/sludges from primary zinc production.	(T)
	K068	Cadmium plant leach residue (iron oxide) from primary zinc production.	(T)
Primary aluminum	K088	Spent potliners from primary aluminum reduction.	(T)
Ferroalloys	K090	Emission control dust or sludge from ferrochromium-silicon production.	(T)
	K091	Emission control dust or sludge from ferrochromium production.	(T)

In the November 19, 1990 notice, EPA indicated that any subsequent action to narrow the scope of the exclusion would be a formal rulemaking: "... the Agency, in subsequent rulemaking action, may further narrow the exclusion. If EPA narrows the scope of the exclusion ... in future rulemaking, those who generate, transport, store, treat or dispose of wastes affected by such a change will have six months to prepare for compliance with the regulations."

Each of the commenters representing the mining industry who addressed EPA's interpretation of the exclusion agreed that all smelting and refining wastes were covered by the Bevill Amendment. The commenters relied primarily on Rep. Williams's remarks during floor debate in which he quoted a National Academy of Sciences report stating that slag wastes generated by the smelting of copper are "basically inert and weather slowly." However, in its comments, the Bureau of Mines in the Department of the Interior stated that it believed the exclusion was meant to cover "the overburden, waste rock, and mill tailings from mining or milling," but not "solid wastes from refining or further beneficiation carried out as a discrete process."

Since Congress enacted the mining waste exclusion and EPA published its interpretation of the exclusion in 1980, EPA and State regulatory agencies have had to make dozens of individual determinations as to whether a given waste is a mining waste and therefore excluded from Subtitle C requirements. It has been particularly difficult to determine what operations constitute "processing of ores and minerals." As a general rule, EPA has interpreted this phrase to include any operation which further refines or purifies the product being mined (often a metal). Combining

the product with another material (e.g., alloying) and fabrication (any sort of shaping that does not cause a change in chemical composition) is not considered "processing of ores and minerals." However, applying this approach, it is still often unclear whether a waste qualifies for the exclusion. For instance, EPA has said that wastes produced by refining copper from 98 to 99 percent purity are excluded. Yet, copper with 98 percent purity can be marketed as a finished product for certain purposes; it does not conform to the usual definitions of "ore" or "mineral."

These determinations of exclusionary status have created a number of inequities among industry segments. For instance, wastes from primary lead smelters are excluded from regulation by EPA's current interpretation of the mining waste exclusion, but similar wastes from secondary lead smelters are subject to full hazardous waste regulation because the smelter input is scrap, not an ore or mineral. In another example, sulfuric acid which is derived from naturally occurring sulfur in certain ores and is removed by acid plants at copper, lead, and zinc smelters is currently excluded. However, spent acids from other industries are regulated as hazardous.

Because of the uncertainties associated with determining the scope of the mining waste exclusion, EPA and State regulatory agencies have had to expend considerable time and resources on lengthy investigations to determine the exact sources of wastes, whether the input to an operation is an ore/mineral or scrap metal (or some combination of both), and the extent to which waste is recycled to production processes. Rather than continue to make these detailed determinations on a case-by-case basis, it has long been thought that some general clarification of the scope of the

mining waste exclusion was necessary. More importantly, as explained in more detail below, it has become increasingly clear that EPA current interpretation does not best serve the Congress's objective in enacting the Bevill Amendment. Instead it has had the effect of excluding a broad range of wastes, many of which are hazardous, and are often generated many steps beyond the initial extraction and beneficiation of ores and minerals.

II. Analysis of Options Available

EPA evaluated three options before preparing this proposal:

(1) Retain the current interpretation and conduct a Section 8002 study on processing wastes that are currently excluded, but are not part of the current Section 8002 study of mining waste.

(2) Narrow the exclusion to include only large volume wastes from processing ores.

(3) Narrow the exclusion to include only large volume wastes from processing *metallic* ores.

In consulting various sources, we have found no standard, accepted definitions, i.e., "plain meanings," for the terms of the exclusion, particularly "processing." Therefore, we reviewed the legislative history of the mining waste exclusion for guidance. In evaluating the options, we relied on the following indications of Congressional intent:

- During the discussion of the mining waste exclusion on the House floor, Rep. Williams of Montana quoted a National Academy of Sciences report stating that slag wastes generated by the smelting of copper are "basically inert and weather slowly." The slag produced 2,500 years ago at King Solomon's mines north of Eliat, Israel has not changed perceptibly over time." 126 *Cong. Rec. H.* 1104 (daily ed. February 20, 1980). Rep. Williams went on to say that such wastes should not be subject to RCRA. His statements were unchallenged in subsequent debate on the amendment. In addition, in his "Extension of Remarks" in the Congressional Record, Rep. Bevill, the amendment's sponsor, stated that "the list of waste materials in the amendment ... (should) be read broadly, to incorporate the waste products generated in the real world." 126 *Cong. Rec. E* 4957 (daily ed. November 17, 1980).

- The legislative history of the Bevill Amendment indicates that EPA's regulatory concept of a "special waste" should be used as a guide in discerning Congressional intent. The Conference Committee Report states that the 1980 RCRA amendments suspend regulation of "a category designated as special

wastes" in regulations proposed by the Agency under Subtitle C on December 18, 1978. S. Rep. No. 96-1010, 96th Cong. 2d Sess. 32 (1980) (Conference Committee Report). In addition, Rep. Santini stated that he believed the amendment would "defer regulation of 'special waste' until after EPA studies the need to do so." 126 Cong. Rec. H 1089 [daily ed. February 20, 1980].

- In the preamble to the 1978 regulations, EPA explained that it intended to treat special wastes differently because they were generally thought to be high volume, low toxicity materials, and not amenable to management under the proposed standards for hazardous waste treatment, storage, and disposal facilities. While EPA listed several smelting wastes as hazardous wastes, only a few listed smelting wastes were included in the "special waste" category. Section 250.46-3 of the 1978 proposal, which was titled "Phosphate rock mining, beneficiation, and processing waste," listed "slag . . . from elemental phosphorus production" as one of the wastes subject to special waste regulations.¹

- In the legislative history accompanying the 1984 amendments to RCRA, the Senate Committee on Environment and Public Works stated:

Solid wastes from mining and mineral beneficiation and processing are primarily waste rock from the extraction process and crushed rock, commonly called tailings, produced from concentrating steps such as grinding, crushing, sorting, sizing, classification, washing, dewatering, amalgamation, gravity treatment, flotation, agglomeration and cyanidation. The 1980 amendments covered wastes from the initial stages of mineral processing, where concentrations of minerals of value are greatly increased through physical means, before applying secondary processes. Smelter slag might also be included. Massive volumes of this waste ore are produced annually by mining and mineral processing facilities—roughly estimated by the American Mining Congress (AMC) to be approximately 1.75 billion tons in a typical year, which is clearly significantly greater in volume than the solid waste generated by all other industries combined. These wastes were considered "special wastes" under the 1978 proposed regulations as being of large volume and relatively low hazard.

Each of the options is evaluated below in light of these indications of Congressional intent:

¹ Although the process for obtaining elemental phosphorus from phosphate is called phosphorus reduction, rather than smelting, both processes have the same purpose (i.e., separating the desired element from the ore) and comparable wastes (e.g., slag).

Option 1—Retain current interpretation and conduct a Section 8002 study on wastes that are currently excluded, but are not part of the current Section 8002 mining waste study.

EPA believes that this option does not reflect either the special waste concept or the intent of Congress as described above. This option would entail studying many low volume wastes, some of them hazardous, generated by facilities processing ores. It would dilute resources available for studies on large volume wastes of interest to Congress.

Option 2—Narrow the exclusion to include only large volume wastes from processing ores.

This interpretation is most consistent with Congressional intent because it leaves large volume processing wastes (i.e., phosphogypsum from phosphoric acid plants, slag from primary smelting of metallic ores or phosphorous reduction, and muds from bauxite refining) within the exclusion, deferring their possible regulation under Subtitle C until completion of studies required for the Report to Congress on mining waste. Annual phosphogypsum disposal is approximately 47 million metric tons; slag disposal from primary metal smelters is over 4 million metric tons; slag from phosphorous reduction is over 3 million metric tons; and mud from bauxite refining is about 2 million metric tons. By limiting the mining waste exclusion to these high volume wastes, this option takes into account the references in the legislative history to high volume, relatively low toxicity wastes, i.e., "special wastes." In fact, this approach constitutes the most rigorous application of the special waste concept.

Option 3—Narrow exclusion to include only large volume wastes from processing metallic ores.

This option represents the narrowest possible reinterpretation of the mining waste exclusion, but it reflects only Rep. Williams's specific remarks about slag from copper smelting in Israel. It would maintain the excluded status of red and brown muds (2 million metric tons/year) produced by refining bauxite ore. However, a very large volume processing waste, the 47 million metric tons of phosphogypsum produced each year by phosphoric acid plants, would no longer be within the exclusion. This option also would remove another large volume waste from the exclusion: slag produced by the facilities extracting elemental phosphorus from phosphate ore, because phosphorus is not a metal.

Based on the above analysis of Congressional intent, EPA believes that it was incorrect in interpreting the

mining waste exclusion as encompassing all wastes from primary smelting and refining. Therefore, EPA is proposing to reinterpret the mining waste exclusion so that red and brown muds, phosphogypsum, and primary processing slags are the only processing wastes that remain excluded from regulation under Subtitle C of RCRA. All other wastes from processing ores and minerals would be subject to Subtitle C regulation if the wastes are hazardous.

EPA is aware that there are a large number of wastes that could arguably be viewed as wastes from the "processing" of minerals or ores. However, we believe the term "processing" must be interpreted in light of the criteria outlined above. Based on these criteria, we conclude that not all such wastes are properly excluded from regulation under the mining waste exclusion primarily because they do not meet the "special waste" criteria, i.e., high volume, relatively low toxicity. For instance, as mentioned earlier, the listings of certain smelting wastes as hazardous waste were suspended after the Bevill Amendment was enacted even though the rulemaking records for these listings show they are hazardous and these listings were not challenged.

In addition, many of the wastes excluded by EPA's 1980 interpretation of the mining waste exclusion are not high volume wastes.² The processing wastes we are proposing for retention within the exclusion range in volume from 2 to 47 million metric tons per year. These volumes are comparable to the other special waste categories proposed December 18, 1978. See 43 FR 58992. For example, utility waste was estimated at 66 million metric tons per year and cement kiln dust at 12 million metric tons per year. The volumes of wastes that would be removed from the exclusion as a consequence of the reinterpretation are substantially smaller in volume than the wastes that would remain within the exclusion. In fact, these waste volumes are generally smaller than the volumes already subject to Subtitle C regulation in other (non-mining) industrial sectors.

EPA requests public comment on the proposed reinterpretation of the mining waste exclusion. Commenters should

² Based on the various indications of Congressional intent described in the text, EPA believes it is reasonable to rely primarily on volumes of waste generated to determine which wastes should have been excluded by the Bevill Amendment. However, it may well be appropriate to consider additional factors in making regulatory decisions regarding waste with hazard characteristics similar to those of the high volume wastes covered by the Bevill Amendment.

identify any other processing wastes that meet the "special waste" criteria and therefore should remain within the mining waste exclusion.

III. Proposed Relisting of Smelting Wastes

A. General

EPA proposes to relist as hazardous six wastes (Table 2) associated with smelting operations that were removed from the listing regulations after the Bevill Amendment was enacted.³ As explained previously, EPA believes this proposed interpretation more accurately represents the intent of Congress when it enacted the mining waste exclusion; therefore, we also believe it is appropriate to propose to relist those wastes that were suspended because they fell under our 1980 interpretation of the wastes subject to the exclusion. While we are requesting comment on the revised interpretation, we are not requesting comment (except as specified below) on the specific basis for the proposed relisting of these wastes as hazardous. (See Preambles to May 19,

1980 (45 FR 33113-115) and July 16, 1980 (45 FR 47834) Federal Register notices and background documents to these specific listings for EPA's basis in listing these wastes as hazardous.) Since it was EPA's interpretation of the Bevill Amendment, not a reevaluation of their hazard, that provided the sole basis for removing them from the regulations, it is the interpretation of that provision that should determine whether these wastes should again be listed. In fact, when these wastes were removed from the hazardous waste list, we specifically indicated that if our interpretation was modified to no longer include the smelting and refining wastes, we would add these wastes to the hazardous waste list without reproposal. See 40 FR 4614, January 16, 1981 and 46 FR 27473, May 20, 1981. If any person disagrees with the listing of these wastes based on additional information about their hazard, i.e., information which does not appear in the rulemaking record for the 1980 listings, they should explain the specific basis for their objections and provide additional information.

with excess lime may well immobilize the metals so that they do not exhibit EP toxicity (as well as any of the other characteristics). EPA is proposing to restore the listing of these three wastes for a number of reasons.

First, these wastes are not being proposed for relisting because they exhibit any of the hazardous waste characteristics; rather, these wastes are being proposed for relisting after considering the listing criteria in 40 CFR 261.11(a)(3) (i.e., concentration of toxic constituents in the wastes, ability of the toxicants to migrate from the waste, degree to which the toxic constituents bioaccumulate in ecosystems, plausible types of improper management, volumes of wastes generated, etc.). These criteria were the basis for the original listing. We therefore, believe it inappropriate to now designate these wastes as non-hazardous based solely on the EP toxicity characteristic. Second, EPA does not have information documenting the extent to which the nonferrous plants use excess lime to treat these wastewaters so some of these wastes may exhibit EP toxicity. Further, plants wishing to recycle (resmelt) wastewater treatment sludges may choose to use different chemical precipitants (or not to use excess lime) because use of excess lime may cause metal precipitants to become contaminated with calcium compounds and thus may not be readily extractable; on this last point, the Agency solicits comment and data on the extent that the chemical precipitation technology using 10 percent excess lime would discourage the recycling of any of these wastes.

The Agency, therefore, proposes to restore the listing of these three wastes. Nevertheless, the Agency specifically solicits comment and data on these wastes to determine whether or not they should continue to be listed (based on the original listing criteria) if the wastes are generated through the use of chemical precipitation and sedimentation using excess lime. In particular, we request the following information for each of the wastestreams:

- Total concentration of the listed constituents (i.e., cadmium and lead) on a representative number of samples;
- EP toxicity test results of the listed constituents on a representative number of samples;
- Total concentration and EP toxicity test results for the EP toxic metals (i.e., arsenic, chromium, and silver) and nickel on a representative number of samples;

TABLE 2.—SMELTER WASTES PROPOSED FOR RELISTING

Industry	EPA hazardous waste No.	Hazardous waste	Hazard code
Primary copper	K064	Acid plant blowdown slurry/sludge resulting from the thickening of blowdown slurry from primary copper production.	(T)
Primary lead	K065	Surface impoundment solids contained in and dredged from surface impoundments at primary lead smelting facilities.	(T)
Primary zinc	K066	Sludge from treatment of process wastewater and/or acid plant blowdown from primary zinc production.	(T)
Primary aluminum	K068	Spent potliners from primary aluminum reduction.	(T)
Ferroalloys	K090	Emission control dust or sludge from ferrochromium-silicon production.	(T)
	K091	Emission control dust or sludge from ferrochromium production.	(T)

B. Wastewater Treatment Sludges

EPA recently promulgated effluent limitations guidelines and standards for the nonferrous metals manufacturing sector. See 40 CFR Part 421. This regulation, among other things, identifies precipitation and sedimentation using excess lime as one technology to be used as part of the Best Available Technology (BAT) for removing metals from nonferrous smelting and refining wastewaters (in some cases a second precipitation step could be conducted using sulfide as the precipitant). See 49 FR 8742, March 8, 1984. The Agency assumed (for costing purposes) that sludges generated as a result of lime precipitation would not be hazardous

under Subtitle C of RCRA if an excess of 10 percent additional lime is used; the basis for this conclusion was that these wastes are not likely to exhibit any of the characteristics of hazardous waste, including the extraction procedure (EP) toxicity characteristic.

In this proposed rule, EPA is proposing to restore the listing of three specific wastewater treatment sludges—namely, EPA Hazardous Waste Nos. K064, K065, K066—which are not likely to exhibit any of the characteristics of hazardous waste if they are generated as the result of excess lime addition (10 percent) to wastewater. See 49 FR 8742. Although chemical precipitation of wastewater

materials. See Section III. C. for more detailed discussion.

³ Two of the residues listed previously are not being relisted based on our reevaluation of these

- Multiple extraction testing for all of the EP toxic metals and nickel on a representative number of samples;⁴

- Techniques used in managing these wastes (i.e., unlined piles, lined surface impoundments); in providing this information, commenters should be as specific as possible;

- Volume of waste generated;
- Ground-water monitoring data (if available);

- Percentage of wastewaters treated with 10 percent excess lime which is the basis for BAT guidelines for nonferrous smelting and refining wastewaters;

- Percentage of wastestreams treated using other precipitants;

- The amount of excess lime as a percentage of dry sludge.

Based on this information, we may conclude that the wastewater treatment sludges generated using 10 percent excess lime are in fact non-hazardous and therefore may narrow the scope of the listing accordingly.

C. Wastes That Are Recycled

1. Introduction

EPA recently promulgated a rule which, among other things, specifies which materials are solid and hazardous wastes when they are recycled. See 50 FR 614, January 4, 1985. (This rulemaking also specified general and specific management standards for most types of hazardous waste recycling activities.) A large percentage of the wastes that would be relisted under this proposal are land disposed. These include 69 percent of the acid plant blowdown from primary copper production, 97 percent of the sludge from treatment of wastewaters and/or acid plant blowdown from primary zinc production, 97 percent of the spent potliners from primary aluminum production, and 100 percent of the emission control dust/sludges from ferrochromium-silicon and ferrochromium production. However, three of the wastes are primarily recycled by being reclaimed. These include 100 percent of the surface impoundment solids from primary lead production; 100 percent of the electrolytic anode slimes/sludges from primary zinc production; and 100 percent of the cadmium leach residue treatment sludge from primary zinc production. (see Table 3).

⁴ The Agency has developed and is using the multiple extraction procedure (MEP) in evaluating certain delisting petitions to evaluate the long-term stability of wastes. The Agency believes it appropriate to also use it in evaluating listing decisions. See the public docket for this proposed rule which describes the methodology.

TABLE 3.—GENERATION OF HAZARDOUS WASTES IN THE PRIMARY NONFERROUS SMELTING AND REFINING INDUSTRIES

EPA Number (when listed) and hazardous waste	Tons/yr 1984	Immediately recycled (percent)	Recycle after storage (percent)	Land disposal (percent)
Primary copper—K064: Acid plant blowdown slurry/sludge	32,864	0	31	69
Primary lead—K065: Surface impoundment solids	48,193	50	50	
Air pollution control dusts	62,350	100		
Total	128,541			
Primary zinc and ZnO ₂ :				
K066: Wastewater treatment sludge	32,380	3	0	97
K067: Electrolytic anode slimes	N/A	57	43	
K068: Cadmium plant leach residue	N/A	12	88	
Saleable leach residue	2,400	87	13	0
Non-saleable leach residue	31,400	53	0	47
Clinker	54,000	0	17	83
Furnace residue	180,000	0	13	87
Total	297,780			
Primary aluminum—K088:				
Spent potliners	130,000	3	25	72
Wet sludges	92,750	1	7	92
Pot slimes	11,811	19	0	81
Shot blast dusts	11,300	1	0	99
Total	245,866			
Primary titanium and TiO ₂ :				
Chloride process sludges ¹	350,000		10	90
Sulfate process sludges	100,000		100	0
Metal sludges	5,000			100
Total	455,000			
Ferroalloys:				
K090: Fe/Cr emission control dust	3,300			100
K091: Fe/Cr emission control dust	6,500			100
Other dusts, sludges, and residues	180,200			
Total	190,000			
Magnesium, zirconium/hafnium—Dusts, sludges and other residues	22,000			

¹ 72 percent sold.

² Another 2,000,000 tons/year of chloride process acids are disposed of by deep-well injection.

³ Sold as product.

Source: "Hazardous Waste Management Costs in Selected Primary Smelting and Refining Industries" (June 1985) and "Overview of Solid Waste Generation, Management, and Chemical Characteristics" for aluminum, copper, zinc, ferroalloys, titanium dioxide, zinc oxide, and zirconium/hafnium sectors. (Published as draft reports by PEI and Radan in 1984.)

In the January 4, 1985 rulemaking, we indicated that certain materials being reclaimed⁵ are solid wastes only when they are listed as hazardous waste. We also indicated that materials being reclaimed can be listed as solid wastes; however, in doing so, a number of factors must be considered which would demonstrate whether the material is handled as a commodity or a waste. In evaluating these three residues, we believe that the surface impoundment solids from primary lead production are solid wastes and therefore should be relisted, while the electrolytic anode slimes/sludge and cadmium plant leach residue from primary zinc production are not solid wastes and should not be relisted.

2. EPA's Basis for Listing/Not Listing Surface Impoundment Solids from Primary Lead Production, and Electrolytic Anode Slimes/Sludges, and Cadmium Plant Leach Residue from Primary Zinc Production

As described above, the January 4 rules define which materials are solid and hazardous wastes when they are recycled. Among other things, the rules indicate that all spent materials⁶ (whether they are listed or exhibit one or more of the hazardous waste characteristics) are defined as solid wastes when they are reclaimed.⁷

⁶ A spent material is any material that has been used and as a result of contamination can no longer serve the purpose for which it was produced without processing. See 40 CFR 261.1(c)(1); see also preamble discussion in 50 FR at 624, January 4, 1985.

⁷ Based on our initial survey, 28 percent of the spent potliners are recycled by being reclaimed. It could be argued that this percentage is significant and, thus, these materials are more product-like than waste-like and should not be listed. However,

Continued

⁵ A material is reclaimed if it is processed to recover a usable product or if it is regenerated. See 40 CFR 261.1(c)(4); see also preamble discussion in 50 FR at 633, January 4, 1985.

Sludges and by-products, however, are only defined as solid wastes when they are reclaimed if they are specifically listed.⁹ We limited the definition to selected sludges and by-products to avoid including sludges and by-products that are routinely processed to recover usable products as part of ongoing production operations. Nevertheless, sludges and by-products that are routinely reclaimed can be listed and thus be solid wastes if they are more waste-like than product-like. EPA will make this determination on a material-by-material basis considering: (1) How frequently the material is recycled on an industry-wide basis, (2) whether the material is replacing a raw material and the degree to which it is similar in composition to the raw material, (3) the relation of the recovery practice to the principal activity of the facility, and (4) whether the secondary material is managed in a way designed to minimize loss. See 50 FR at 641. In addition, the length of time materials are accumulated before being reclaimed is relevant since prolonged storage without recycling suggests that materials will not in fact be recycled, or are only of marginal recycling potential. See 50 FR at 635.

EPA has evaluated the three materials that are routinely reclaimed and, based on the information gathered, we believe the surface impoundment solids from primary lead production should be considered solid wastes and thus regulated as hazardous wastes, whereas the electrolytic anode slimes/sludges and cadmium plant leach residue from primary zinc production should not be considered solid and hazardous wastes. These conclusions are explained below.

since spent potliners are defined as a spent material and since all spent materials are defined as wastes when they are reclaimed, these materials (whether or not they are listed) would be defined as solid wastes. In addition, it should be noted that the Agency has found that the principal purpose of recycling spent potliners is hazardous waste treatment, not cryolite recovery. Thus spent potliners are not considered to be recycled for regulatory purposes. 49 FR 6746, March 8, 1984 and 50 FR at 639641, January 4, 1985.

⁹ Under the recycling rules, the surface impoundment solids at lead smelting facilities would be defined as a sludge while the electrolytic anode slimes/sludges and cadmium plant leach residue from zinc production would be defined as by-products.

¹⁰ Non-listed sludges and by-products would be defined as solid wastes if they are accumulated speculatively. A material is accumulated speculatively if it is accumulating before being recycled unless a person can demonstrate that the material has recycling potential and can feasibly be recycled, and during a one-year calendar period, the amount of material recycled or transferred to a different site for recycling is at least 75 percent of the amount accumulated at the beginning of the year.

3. Surface Impoundment Solids Contained in and Dredged From Surface Impoundments at Primary Lead Smelting Facilities

This waste is generated by primary lead smelting plants when the solid particulates from wastewater/slurries (that are generated at various steps in the smelting process) are allowed to settle in surface impoundments. Based upon EPA's survey of approximately 50 percent of the industry, all of this material is recycled by being reclaimed. However, at least half of this material is recycled only after it is stored for long periods of time, up to several years. In addition, and more importantly, these sludges are not stored in a way commensurate with designation as products; rather, they are stored in an insecure fashion without any significant attempt to minimize loss. These sludges are stored in surface impoundments; surface impoundments containing secondary materials (as well as hazardous wastes) pose a particular threat to ground water and have always been one of the chief concerns of the hazardous waste management program. Further, the materials are constantly in the presence of liquids, creating the situation most conducive to forming leachate. Since most impoundments are unlined, and many are underlain by permeable soils, the potential for downward seepage of contaminated fluids into ground water is high.¹⁰ In addition, due to declining lead demands, there is a strong potential that these sludges may not be recycled.

Furthermore, in granting variances from classification as a solid waste, one of the factors the Agency will consider is the extent to which handling of the material (before being reclaimed) is designed to minimize loss. See 40 CFR 280.31(a)(4); 280.31(b)(3); and 280.31(c)(5). Where the materials are stored in open unlined piles, unlined impoundments, or leaking tanks and drums, it is less likely a variance will be granted (*i.e.*, the more carefully a material is handled, the more it is commodity-like. (See 50 FR at 654-655.)) We, therefore, believe that although most, if not all, of this material may eventually be reclaimed, it is managed in a waste-like manner and therefore should be listed as a solid waste.

¹⁰ See U.S. EPA, Report to Congress, Surface Impoundments and Their Effect on Ground Water Quality in the United States—A Preliminary Survey, EPA 7019-78-004 (1978), and U.S. EPA, The Prevalence of Subsurface Migration of Hazardous Chemical Substances at Selected Industrial Waste Disposal Sites, EPA/5301 SE 6341 (October 1977). See also substantial portions of the legislative history of the 1984 Amendments to RCRA.

4. Electrolytic Anode Slimes/Sludges and Cadmium Plant Leach Residue (Iron Oxide) From Primary Zinc Production

The electrolytic anode slimes/sludges are generated from the cleaning of electrolytic cells (*i.e.*, they consist of gangue material that is passed through earlier process steps, but is not plated out or electrolyzed in the electrolysis step), while the cadmium plant leach residue is generated from leaching of process dusts with a high cadmium content. Like the surface impoundment solids discussed previously, all of these residues are recycled by being reclaimed. However, these materials are handled much more carefully than the surface impoundment solids. In particular, based on data recently submitted by the American Mining Congress (AMC),¹¹ these facilities (based on a survey of 100 percent of the production facilities) recycle 100 percent of these residues, and a large percentage are recycled immediately without storage. If the material is stored prior to recycling, it is stored for a maximum of 30 days; where there is storage, it occurs in devices that minimize loss of those residues (*i.e.*, in metal hoppers, concrete basins, etc.) Furthermore most of these materials are recycled on-site, thus minimizing any loss during transportation. Therefore, we believe these materials are more commodity-like than waste-like and, therefore, are not proposing to list them as solid and hazardous wastes. (It should be noted that these materials may still be solid and hazardous wastes if they are accumulated speculatively.)

IV. Analysis of Economic Effects of the Proposed Reinterpretation

The Agency conducted cost and economic impact studies to analyze the potential impact of this reinterpretation and to determine whether the proposed regulation is a major rulemaking (under Executive Order 12291) or would cause significant impacts on small business (pursuant to the Regulatory Flexibility Act). Although EPA determined that the proposal is not a "major" rule, detailed impact studies were performed for a substantial portion of the potentially affected industry sectors.

This section of the preamble is a summary of the cost and impact analyses documented in U.S. EPA, *Hazardous Waste Management Costs in Selected Primary Smelting and Refining Industries* (hereafter referred to as the Cost Document), *Economic Impact*

¹¹ See letter from James R. Walpole to Matthew A. Straus dated August 5, 1985, in the public docket for this rulemaking.

Analysis of Proposed Reinterpretation of Solid Waste Exemption for the Primary Smelting and Refining Industry (two volumes, hereafter referred to as the Economic Impact Report), and *Overview of Solid Waste Generation, Management, and Chemical Characteristics* (hereafter referred to as the Technical Studies). These documents are available in the public docket for this rulemaking.

A. Scope and Coverage of Economic Analysis

The Agency's economic impact analysis was conducted in two parts. The first part consisted of a detailed compliance cost and economic impact analysis covering ten major primary metal smelting and refining sectors containing a total of 110 operating facilities producing 97 percent of total U.S. nonferrous and ferroalloy product tonnage in 1983. These ten sectors include all of the large volume sectors with previously listed smelting wastes (aluminum, copper, lead, zinc, and ferroalloys) as well as a broad sampling of five additional nonferrous metal industries shown by previous studies to generate potentially hazardous wastes (magnesium, titanium metal, titanium dioxide, zinc oxide, and zirconium/hafnium). According to U.S. Bureau of Mines and EPA survey data, the remaining three percent of nonferrous production is contributed by 21 metals sectors (400 facilities) not covered in the detailed impact assessment.

The second part of EPA's impact analysis involved a much less detailed screening study of these 21 sectors to isolate those sectors most likely to be significantly affected. Based on this screening, EPA believes that the major part of the total national cost impacts are accounted for by the 97 percent of the total production covered in our detailed analysis, and that the impact patterns in the covered sectors will generally be similar in the additional sectors.

B. Methodology and Data Gathering for the Ten-Sector Study

EPA first conducted a series of technical survey and sampling studies covering ten major ore-processing industries to determine the volume of wastes generated, identify those wastes which could be hazardous because they exhibit one of the characteristics defined in 40 CFR 261.2, estimate the volume of these hazardous wastes, and delineate the practices currently used to manage these wastes. The major findings are summarized in Table 3 above. Based on the technical survey and sampling results, a plant-by-plant

waste management assessment was then made for all 110 facilities in the sectors studied, utilizing plant survey data from over 80 individual facilities and waste sampling results from 50 facilities.

Where data were incomplete for surveyed plants or absent entirely for non-surveyed facilities, the types and quantities of hazardous and non-hazardous waste, current waste management practices, and production relationships were estimated from survey data at similar processing facilities. In the absence of site-specific information, EPA erred on the conservative side by assuming that all non-surveyed facilities did produce hazardous waste streams comparable in quantity and type to those found in the sample survey for other facilities with similar products.

EPA then estimated waste management costs for both current baseline practices (observed or assumed) and RCRA Subtitle C requirements at each of the 110 individual facilities. The difference between current baseline costs and total RCRA compliance costs is the incremental compliance cost for this regulation, providing the basis for evaluating economic impacts.

In selecting RCRA Subtitle C compliance practices for facilities, EPA assumed that companies would adopt a least-cost, conventional waste management option consistent with technical considerations relating to the facility's current practices and waste characteristics. All RCRA compliance options involving surface impoundments or landfills were based on a double synthetic liner technology consistent with the requirements of the Hazardous and Solid Waste Amendments of 1984. The analysis did not consider in-plant process changes, innovative recycling activities, or by-product options that might reduce compliance costs or turn net compliance costs into net savings.

The Agency estimated incremental compliance costs for storing, treating, transporting, and disposing of a waste stream. Costs include initial capital investment, annual operation and maintenance (O&M), capital investment for waste facility closure, and annual O&M costs for postclosure maintenance for a period of 30 years. Compliance costs were converted to an annualized cost form to provide the uniform annual cost that would be equivalent to the incurred cost stream. Initial investment costs were amortized over a 20-year lifetime, using the companies' weighted average cost of capital.

As part of the economic analysis, EPA also assembled extensive historical information on plant capacity and production levels, investment, prices, and financial conditions in order to base the impacts on more accurate projections. Where possible, EPA collected financial information for individual metals (for example, primary aluminum and primary copper). In some cases, lack of data forced consolidation of the financial characteristics of several metal subcategories (for example, lead with zinc and zirconium/hafnium with titanium).

Historical data from 1978 to 1983 were then used to estimate projected metal prices. In estimating rates of return, investment levels, production, and operating income, EPA used data from the three-year span of 1979 to 1981, on the assumption that this period provided the best indication of the performance of these plants under expected future conditions, and that 1982 and 1983 data reflected an atypically severe period of economic recession.

The plant closure methodology focuses only on specific plants having annualized compliance costs greater than one percent of sales. Previous Agency studies in support of effluent guidelines regulations under the Clean Water Act have shown few impacts with compliance costs below this level, but show occasional impacts when costs are more than one percent of sales. For plants with costs above this level, EPA then employed two plant closure tests: a net present value test and a liquidity test. The net present value test focuses on long-term profitability, with the viability of the plant being judged by a comparison of the net present value of its cash flow to its liquidation value. The liquidity test addresses short-term viability and focuses on affordability during the first few years of compliance. The closure analysis also assumes zero pass-through of compliance costs; that is, to avoid overlooking potential closures, plants are assumed to absorb all of the compliance costs as a direct increase in production costs (decrease in profit).

C. Costs of Compliance for Ten Major Sectors

EPA identified 67 manufacturing facilities (out of 110) in the ten sectors that will likely incur increased costs to comply with this regulation. Based on its industry survey, EPA concluded that certain facilities were not generating hazardous wastes, while others were either utilizing immediate recycling or were probably already in compliance with current RCRA management

requirements. Table 4 summarizes EPA's compliance cost estimates for each sector. For the ten sectors studied, we estimate total investment costs for

compliance at about \$57 million, and total annualized costs to be about \$20 million.

TABLE 4.—SUMMARY OF ANNUALIZED COMPLIANCE COSTS

Subcategory	Number of plants			Annualized compliance costs (000's dollars)		
	Total	Incurring costs	Range	Median	Average	Total
Primary aluminum	29	19	0-718	76	158	3,002
Primary copper	20	11	2-63	43	37	402
Primary lead	6	4	2-62	50	46	185
Primary zinc	5	4	15-1,270	44	343	1,372
Primary zinc oxide	3	2	13-1,711	662	862	1,724
Ferroalloys	29	13	1-444	126	184	2,398
Primary magnesium and primary zirconium/hafnium	5	4	31-656	173	258	1,033
Primary titanium	6	5	16-311	36	97	484
Primary titanium dioxide	9	6	327-2,454	1,145	1,211	9,667
Industry total	110	67	1-2,454		303	20,287

¹ The Primary magnesium and primary zirconium/hafnium subcategories are merged to preserve confidentiality.
² Some plants produce more than one type of metal; therefore, the total is not the sum of all the numbers listed.

Source: "Waste Management Costs in Selected Primary Smelting and Refining Industries" (June, 1985), and "Economic Impact Analysis of Proposed Reinterpretation of Solid Waste Exemption for the Primary Smelting and Refining Industry" (June 1985).

Annualized compliance costs vary considerably, both among sectors and among individual facilities within each sector. The most extremely affected sector, titanium dioxide, faces expected total annual compliance costs of over \$9 million (almost half of the total costs for all ten sectors), with an average per facility cost of \$1.2 million per year. This contrasts, for example, with total compliance costs for the primary lead sector of \$185,000 per year (\$46,000 per year per facility).

Within individual industries, there are typically one or several plants with no projected compliance costs, either because of the non-hazardous character of the wastes or because of recycling or other management programs already in place. For plants incurring cost within a given sector, it is typical for some to

face only a few thousand dollars per year and others in the same sector to face several hundred thousand dollars or more per year in incremental compliance costs.

D. Economic Impacts for the Ten Major Sectors

Based on the compliance cost estimates and other economic variables for individual facilities in each of the ten sectors, EPA assessed several categories of possible economic impacts, including effects on production costs and prices, international trade, total investment requirements, profit (return on investment), and potential for plant closures and job losses. General effects are summarized in Table 5, while plant closures and employment losses are discussed below in relation to Table 6.

TABLE 5.—Summary of Economic Impacts

Industry subcategory	Total number of plants	Number of plants incurring costs	Average percent change in return on investment	Average percent increase in production cost	Average percent price change	Average investment cost as a percent of capital expenditures
Primary aluminum	29	19	-1.47	0.10	0.09	1.26
Primary copper	20	11	-1.35	0.03	0.03	1.36
Primary lead	6	4	-0.60	0.08	0.07	4.14
Primary zinc	5	4	-10.25	1.48	1.20	74.75
Primary zinc oxide	3	2	-30.79	6.02	4.89	118.50
Ferroalloys	29	13	-20.91	0.67	0.66	21.61
Primary magnesium and primary zirconium/hafnium	5	4	-2.07	0.37	0.31	2.90
Primary titanium	6	5	-1.65	0.41	0.32	2.44
Primary titanium dioxide	9	6	-29.30	1.79	1.66	34.53
Industry	110	67	-4.80	0.35	0.33	3.54

¹ The primary magnesium and primary zirconium/hafnium subcategories are merged to preserve confidentiality.

² Some plants produce more than one type of metal; therefore, the total is not the sum of all the numbers listed.

Source: "Economic Impact Analysis of Proposed Reinterpretation of Solid Waste Exemption for the Primary Smelting and Refining Industry" (June, 1985).

Production Costs and Prices

As indicated in Table 5, we estimate that the average increases in production costs and prices would be small to moderate (less than two percent) in all subcategories except primary zinc oxide (where we would expect a six percent increase in cost of production and almost five percent increase in prices). On average, however, the annualized cost of this rule amounts to less than 0.4 percent of current production costs or current prices.

Because of these generally low effects on prices (even the maximum effects), the study did not explore any further the possible effects on international trade. However, price pressures for basic commodities of the size indicated here are not likely to affect international market positions.

These results assess both the maximum impact on production costs and the maximum impact on prices. To assess production costs, we assumed zero pass-through of compliance costs to market prices, whereas to assess price changes we assumed a 100 percent passthrough of compliance costs. Therefore, these effects should be regarded as mutually exclusive estimates for purposes of presenting extreme possibilities.

Capital Investment and Rates of Return

The Agency projects the average investment cost as a percent of normal capital expenditures to range from nominal (one to four percent) in about half the sectors to very large (75 to 118 percent) in the zinc and zinc oxide sectors. This result may be partly due to the abnormally depressed state of capital expenditures in the 1979-81 base period for some of these sectors. Non-growth or declining sectors generally can be expected to show very high ratios in this column due to low base capital investment figures. These estimates were also based on the extreme assumption of zero pass-through of costs to prices, a worst-case assumption that also tends to increase these ratios.

Similar reasoning may in part explain the estimates regarding rates of return on investment. In general, results here fall into two categories: five sectors with maximum impacts on profit of about two percent or less, and four groups with compliance costs in the range of 10 to 31 percent of profits. In part, these high percentages are due to higher than average RCRA compliance costs (because of relatively large hazardous waste volumes compared to other sectors) and in part they are due to

lower than average baseline rates of return.

Plant Closures and Employment Losses

Based on its analysis, EPA concluded that one plant in the ferroalloy subcategory may close as a result of this

reinterpretation (Table 6). If realized, this closure would involve a loss of about 80 jobs at the closed facility. The potential production loss associated with closure represents approximately three percent of the total ferroalloy capacity.

TABLE 6.—SUMMARY OF PLANT CLOSURE ANALYSIS

Sector	Number of plants				Potential employment loss
	Total	Incurring costs	Failing screen	Potential closures	
Primary aluminum	29	19	0	0	0
Primary copper	20	11	0	0	0
Primary lead	6	4	0	0	0
Primary zinc	5	4	1	0	0
Primary zinc oxide	3	2	1	0	0
Ferroalloys	29	13	3	1	80
Primary magnesium and zirconium/hafnium	5	4	0	0	0
Primary titanium	6	5	0	0	0
Primary titanium dioxide	6	6	4	0	0
Industrial total	110	67	9	1	80

Source: "Economic Impact Analysis of Proposed Reinterpretation of Solid Waste Exemption for the Primary Smelting and Refining Industry" (June, 1985).

E. Screening Study Conclusions for 21 Other Metal Sectors

In addition to the ten sectors surveyed in detail for this rulemaking, EPA also conducted a more general screening study of the 21 remaining primary metal processing sectors. These 21 sectors include about 400 facilities that together produce just under 200,000 metric tons of metal per year. Of these 400 facilities, 309 (over three-fourths) are primary refiners of gold and/or silver. Few of these 400 facilities produce more than 5,000 tons of metal production per year, and the majority produce under 100 tons each.

The Agency's methodology for evaluating these sectors included a literature review, evaluation of EPA file data from previous EPA nonferrous industry surveys, and a general comparative cost analysis for average facilities in each sector based on current product cost. Where necessary, conservative waste generation parameters derived from our ten-sector survey analysis were employed to estimate a maximum RCRA impact for specific sectors. These extreme case assumptions included a proxy waste generation rate of one ton of hazardous waste per ton of metal production and an incremental waste management (compliance) cost of \$200 per ton of hazardous waste.

Results of this screening analysis suggest that, at most, five out of the 21 sectors could potentially incur moderate-to-significant impacts from this regulation. These five sectors—tungsten, vanadium, rare-earth metals, columbium, and mercury—could incur incremental RCRA compliance costs in

the range of one to six percent of total production costs under the extreme costing assumptions used for this analysis. Even at these maximum cost levels, EPA's plant closure analysis projects that plant closures would be highly unlikely for tungsten, rare-earth metals or mercury. For columbium and vanadium, it is not possible to rule out possible closures on the basis of the Agency's screening analysis; however, no closures can be projected from this analysis.

More definitive impact conclusions for any of these five sectors would require more detailed survey data for individual facilities on waste generation, waste characteristics (especially EP toxicity), and waste management practices (including current or potential recycling and by-product recovery opportunities).

EPA would appreciate further comment regarding the technical operation and possible RCRA impacts for facilities in any of the 31 sectors identified in the primary nonferrous metals industry. In particular, current data on total waste generation, physical and chemical properties of significant wastestreams, current management practices, and recycling or other by-product use of process residuals is requested for facilities producing primary tungsten, vanadium, rare-earth metals, columbium, and mercury.

V. Public Participation

Requests to participate in the public hearings should be directed on or before November 7, 1985 to Ms. Geraldine Wyer, Public Participation Officer, Office of Solid Waste, (WH-562), U.S. Environmental Protection Agency, 401 M

Street, SW, Washington, DC 20460. The hearing will begin at 9:00 a.m. with registration beginning at 8:30 a.m. The hearings will end at 4:30 p.m., unless concluded earlier. Oral and written statements may be submitted at the public hearings. Persons who wish to make oral presentations must restrict these to 20 minutes, and are requested to provide written copies of their complete comments for inclusion in the official record.

VI. Regulatory Flexibility Analysis

The Regulatory Flexibility Act (RFA) of 1980 (Pub. L. 96-354), which amends the Administrative Procedures Act, requires Federal regulatory agencies to consider "small entities" throughout the regulatory process. The RFA requires an initial screening analysis to be performed to determine whether a substantial number of small entities will be significantly affected by a regulation. If so, regulatory alternatives that eliminate or mitigate the impacts must be considered.

This section presents the results of the Agency's small business screening analysis, based on a review of industry plant ownership patterns and estimated compliance costs. Based on this analysis, EPA has determined that there will not be a significant impact on a substantial number of small businesses.

In the nonferrous metals smelting and refining industry, the Small Business Administration (SBA) defines small entities based on employment levels. For most primary metal sectors, the employment criterion is fewer than 750; however, a higher threshold of 1,000 is used for some sectors. Based on the appropriate definition, for each sector, the Agency screened all 110 facilities in the ten sectors that were studied in detail and determined that, among these, only the ferroalloy sector contained facilities owned by small business enterprises. However, none of the ferroalloy facilities owned by small businesses were among those projected to incur costs due to this reinterpretation.

The remaining 400 nonferrous facilities not covered in our detailed impact analysis were also subjected to this detailed small business ownership screening. It appears that there are small business facilities in the primary silver and gold refining sectors; however, this sector is not expected to incur significant cost effects. Facilities in all of the remaining sectors all appear to be owned by large businesses or conglomerates and therefore would not be subject to the Regulatory Flexibility Act.

VII. Effect on State Authorizations

This proposal, if promulgated, will not be automatically effective in authorized States since the requirements will not be imposed pursuant to the Hazardous and Solid Waste Amendments of 1984. Thus, this reinterpretation will be applicable only in those few States that do not have interim or final authorization to operate their own hazardous waste programs in lieu of the Federal program. In authorized States, the reinterpretation will not be applicable until the State revises its program to adopt equivalent requirements under State law.

40 CFR 261.21(e)(2) requires States that have final authorization to revise their programs to adopt equivalent standards within a year of promulgation of these standards if only regulatory changes are necessary, or within two years of promulgation if statutory changes are necessary. These deadlines can be extended in exceptional cases (40 CFR 271.21(e)(3)). Once EPA approves the revision, the State requirements become Subtitle C RCRA requirements in that State.

States that submit official applications for final authorization less than 12 months after promulgation of this reinterpretation may be approved without including an equivalent provision in the application. However, once authorized, a State must revise its program to include an equivalent provision within the time period discussed above. The process and schedule for revision of State programs is described in amendments to 40 CFR 271.21 published on May 22, 1984. (See 49 FR 21678)

VIII. Compliance With Executive Order 12291

Sections 2 and 3 of Executive Order 12291 (46 FR 13193; February 9, 1981) require that a regulatory agency determine whether a new regulation will be "major" and, if so, that a Regulatory Impact Analysis be conducted. A major rule is defined as a regulation which is likely to result in:

- (1) An annual effect on the economy of \$100 million or more;
- (2) A major increase in costs or prices for consumers, individual industries, Federal, State, and local government agencies, or geographic regions; or
- (3) Significant adverse effects on competition, employment, investment, productivity, innovation, or on the ability of United States-based

enterprises to compete with foreign-based enterprises in domestic or export markets.

Today's proposal will have none of the above effects. Therefore, the Agency is not conducting a Regulatory Impact Analysis. The proposal has been submitted to the Office of Management and Budget (OMB) for review as required by Section 6 of Executive Order 12291. Any comments from OMB to EPA and any response to those comments are available for viewing at the Office of Solid Waste Docket, Room S212, U.S.E.P.A., 401 M Street, SW., Washington, DC 20460.

IX. Paperwork Reduction Act

The information collection requirements in this proposed rule have been submitted for approval to the Office of Management and Budget (OMB) under the Paperwork Reduction Act of 1980, 44 U.S.C. 3501 *et seq.* Submit comments on these requirements to the Office of Information and Regulatory Affairs; OMB; 726 Jackson Place, NW.; Washington, DC 20503 marked "Attention: Desk Officer for EPA." The final rule will respond to any OMB or public comments on the information collection requirements.

X. List of Subjects in 40 CFR Part 261

Hazardous waste, Waste treatment and disposal, Recycling, Reporting and recordkeeping requirements.

Dated: September 27, 1985.

Lee M. Thomas,
Administrator.

§ 261.32 Hazardous waste from specified sources.

Industry and EPA hazardous waste No.	Hazardous waste	Hazardous waste code
Primary copper: K064.....	Acid plant blowdown slurry/sludge resulting from the thickening of blowdown slurry from primary copper production.	(T)
Primary lead: K065.....	Surface impoundment solids contained in and dredged from surface impoundments at primary lead smelting facilities.	(T)
Primary zinc: K066.....	Sludge from treatment of process wastewater and/or acid plant blowdown from primary zinc production.	(T)
Primary aluminum: K068.....	Spent potliners from primary aluminum reduction.	(T)
Ferroalloys: K090.....	Emission control dust or sludge from ferrochromium production.	(T)
K091.....	Emission control dust or sludge from ferrochromium production.	(T)

PART 261—IDENTIFICATION AND LISTING OF HAZARDOUS WASTES

For the reasons set out in the preamble, it is proposed to amend 40 CFR Part 261 as follows:

1. The authority citation for Part 261 continues to read as follows:

Authority: Sections 1006, 2002(j), 1001, and 3002 of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act of 1976, as amended (42 U.S.C. 6905, 6912(a), 6921, and 6922).

2. Section 261.4, paragraph (b)(7), is revised as follows:

§ 261.4 Exclusions.

(b) . . .

(7) Solid waste from the extraction, beneficiation and processing of ores and minerals (including coal), including phosphate rock and overburden from the mining of uranium ore. For purposes of this paragraph, solid waste from the processing of ores and minerals only includes muds from facilities refining bauxite, phosphogypsum from phosphoric acid plants, and slag from primary metal smelters and phosphorus reduction facilities.

3. In § 261.32, add after entries for "Iron and steel" and before entries for "Secondary lead," the following waste streams:

4. In Appendix VII—Basis for Listing Hazardous Waste, add the following in the appropriate alphabetical and numerical sequence:

Appendix VII—Basis for Listing Hazardous Waste

EPA hazardous waste number	Hazardous constituents for which listed
K064	Lead, Cadmium
K065	Lead, Cadmium
K066	Lead, Cadmium
K088	Cyanide (Complexes)
K090	Chromium
K091	Chromium, Lead

[FR Doc. 85-23622 Filed 10-1-85; 8:45 am]

BILLING CODE 6560-50-M

ATTACHMENT II

FEDERAL REGISTER

10/9/86

2.02.2(2)(g)
2.04.12(1)
2.10.1(1)
4.06.1(2)
4.06.2(2)(a)
4.06.2(4)(a)
4.21.4(1)

In addition, Colorado submitted a memorandum on the Division's interpretation of Rule 4.06.1(2).

OSMRE is seeking comment on the adequacy of the amendments in satisfying the requirements set forth under 906.13(b)-(h), and on whether the amendments are consistent with SMCRA and no less effective than its implementing regulations.

IV. Procedural Matters

1. *Compliance with the National Environmental Policy Act:* The Secretary has determined that, pursuant to section 702(d) of SMCRA, 30 U.S.C. 1292(d), no environmental impact statement need to be prepared on this rulemaking.

2. *Executive Order No. 12291 and the Regulatory Flexibility Act:* On August 28, 1981, the Office of Management and Budget (OMB) granted OSMRE an exemption for sections 3, 4, 7 and 8 of Executive Order 12291 for actions directly related to approval or conditional approval of State regulatory programs. Therefore, this action is exempt from preparation of a Regulatory Impact Analysis and regulatory review by OMB.

The Department of the Interior has determined that this rule would not have a significant economic effect on a substantial number of small entities under the Regulatory Flexibility Act (5 U.S.C. 601 *et seq.*). This rule would not impose any new requirements; rather, it would ensure that existing requirements established by SMCRA and the Federal Rules will be met by the State.

3. *Paperwork Reduction Act:* This rule does not contain information collection requirements which require approval by the Office of Management and Budget under 44 U.S.C. 3507.

List of Subjects in 30 CFR Part 906

Coal mining, Intergovernmental relations, Surface mining, Underground mining.

Dated: October 2, 1986.

James W. Workman,
Deputy Director, Operations and Technical Services.

[FR Doc. 86-22784 Filed 10-9-86; 8:45 am]

BILLING CODE 4310-05-01

DEPARTMENT OF TRANSPORTATION

Coast Guard

33 CFR Parts 151 and 158

[CGD 85-010]

Control of Residues and Mixtures Containing Oil or Noxious Liquid Substances

Correction

In FR Doc. 86-21591 beginning on page 34332 in the issue of Friday, September 26, 1986, make the following correction:

§ 151.01-1 (Corrected)

On page 34357, in the third column, § 151.01-1(b), in the first line, "are" should read "are not".

BILLING CODE 1000-01-01

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 261

[SWH-FRL-3091-9]

Mining Waste Exclusion; Withdrawal of Proposed Provision

AGENCY: Environmental Protection Agency.

ACTION: Withdrawal of proposed rule; final action.

SUMMARY: Section 3001(b)(3)(A)(ii) of the Resource Conservation and Recovery Act (RCRA) excludes "solid waste from the extraction, beneficiation, and processing of ores and minerals" from regulation under Subtitle C of RCRA (which regulates hazardous waste), pending completion of certain studies by EPA. The Agency interpreted this exclusion to encompass "solid waste from the exploration, mining, milling, smelting, and refining of ores and minerals." 45 FR 76619, November 19, 1980. On October 2, 1986, EPA proposed to narrow the scope of the exclusion as it applies to processing wastes. 50 FR 40292. EPA also proposed to relist six individual waste streams which would no longer have been deemed to be processing (*i.e.*, excluded) wastes. EPA is withdrawing this proposed rule by today's action. The effect of this action is to retain the existing regulation (40 CFR 261.4(b)(7)) along with the Agency's existing interpretation of its scope.

DATE: This proposed rule is withdrawn effective September 30, 1986.

ADDRESS: The address for the EPA RCRA docket is: United States Environmental Protection Agency, EPA

RCRA Docket (Sub-basement), 401 M Street, SW., Washington, DC 20460. (202) 475-9327.

FOR FURTHER INFORMATION CONTACT: RCRA/Superfund Hotline at (800) 424-9346 or (202) 382-3000 or Dan Derkics at (202) 382-2791.

SUPPLEMENTARY INFORMATION:

I. History of Mining Waste Under RCRA

In section 8002(f) of the Resource Conservation and Recovery Act (RCRA), enacted on October 21, 1976, Congress instructed the Administrator to conduct, in consultation with the Secretary of the Interior, "a detailed and comprehensive study on the adverse effects of solid wastes from active and abandoned surface and underground mines on the environment, including, but not limited to, the effects of such wastes on humans, water, air, health, welfare, and natural resources."

On December 18, 1978 (43 FR 58,946), EPA proposed regulations for hazardous waste management under Subtitle C of RCRA. These proposed regulations, among other things, had fewer requirements for a universe of so-called "special wastes" that are generated in large volumes, were thought to pose less of a hazard than other hazardous wastes, and were not thought to be amenable to the control techniques proposed for hazardous waste treatment, storage and disposal facilities. EPA identified waste materials from the "extraction, beneficiation, and processing of ores and minerals," *i.e.*, mining waste, as one such "special waste" under the proposed regulations.

On May 19, 1980, EPA promulgated the final hazardous waste management regulations which applied to, among other things, mining waste. On May 19, 1980 and July 16, 1980, EPA also listed as hazardous eight waste streams from primary metal smelters.

On October 21, 1980, Congress enacted Pub. L. 96-482 which included various amendments to RCRA. Section 8002 was amended to include subsection (p), which required the Administrator to study the adverse effects on human health and the environment, if any, of waste from the disposal and utilization of "solid waste from the extraction, beneficiation, and processing of ores and minerals, including phosphate rock and overburden from the mining of uranium ore," and submit a Report to Congress on its findings by October 21, 1983. Section 7 of these amendments (the "Bevill Amendment") amended section 3001 of RCRA to exclude these wastes from regulation under Subtitle C of RCRA pending completion of the

studies called for in sections 8002(f) and (p).

On November 19, 1980, EPA published an interim final amendment to its hazardous waste regulations to reflect the mining waste exclusion. The regulatory language incorporating the exclusion is identical to the statutory language (except the phrase "including coal" was added). In the preamble to the amended regulation, however, EPA interpreted the exclusion to include "solid waste from the exploration, mining, milling, smelting, and refining of ores and minerals." 45 FR 76118, 76619. For consistency with this interpretation in the November 19, 1980 amendment, the Agency also amended 40 CFR Part 261 to suspend the listings of the eight waste streams associated with smelting as hazardous wastes. 46 FR 4614, January 16, 1981 and 46 FR 27473, May 20, 1981.

In the November 19, 1980 notice, EPA indicated that it intended to reconsider its interpretation of the exclusion, particularly as it applied to smelting and refining wastes. The notice also indicated that any subsequent action to narrow the scope of the exclusion would be a formal rulemaking.

On September 28, 1984, Concerned Citizens of Adamstown, Carroll Manor Civil Association, and the Environmental Defense Fund sued EPA for failure to complete the mining waste studies and Report to Congress required by RCRA sections 8002 (f) and (p). *Concerned Citizens of Adamstown v. EPA*, No. 84-3041, D.C. District Court. EPA explained to the Court that it planned to propose to "reinterpret" the scope of the mining waste exclusion so it encompassed fewer wastes. Therefore, EPA proposed two schedules to the court: one for completing the section 8002 mining waste studies and submitting the Report to Congress, and one for proposing and taking final action on the reinterpretation. On August 21, 1985, the District Court ordered EPA to meet these two schedules.

In compliance with the court order, on December 31, 1985, EPA completed the section 8002 mining waste studies and submitted its Report to Congress on "Wastes from the Extraction and Beneficiation of Metallic Ores, Phosphate Rock, Asbestos, Overburden from Uranium Mining, and Oil Shale." Six months later, as required by RCRA section 3005(b)(3)(C), and by the court order, EPA published its "regulatory determination" regarding the wastes covered by the Report to Congress. In this notice, EPA concluded that regulation of the wastes included in the Report under RCRA Subtitle C is not

warranted at this time. 51 FR 24496, July 3, 1986.

In the meantime, EPA proposed to narrow the scope of the mining waste exclusion (and to relist six wastes as hazardous), according to the schedule in the District Court's order. 50 FR 40292, October 2, 1985. In preparing the proposed mining waste reinterpretation, EPA consulted various sources, but was unable to find any standard, accepted definitions, i.e., "plain meanings," for the terms of the mining waste exclusion, particularly "processing." *Id.* at 40293. Therefore, EPA next looked to the legislative history for this provision. Our review of the legislative history indicated that the exclusion was intended to cover the category of wastes designated as "special wastes," including "solid waste from the extraction, beneficiation, and processing of ore minerals," in EPA's 1978 proposed hazardous waste regulations at 43 FR 58948, December 18, 1978. As mentioned earlier, "special wastes" were thought to be generated in large volumes and to pose less of a hazard than other hazardous wastes. EPA adopted this "high volume, low hazard" concept as the basis for the October 2, 1985 proposed mining waste interpretation. *Id.* at 40924. Specifically, EPA proposed to reinterpret the exclusion so that red and brown bauxite refining muds, phosphogypsum, slag from phosphorus reduction, and slag from primary metal melters would be the only processing wastes covered by the mining waste exclusion because EPA believed these were the only processing wastes which met the high volume, low hazard criteria. *Id.* In the proposal, EPA requested that commenters identify any other processing wastes that met the "special waste" criteria and therefore should remain within the mining waste exclusion.

II. Basis for Withdrawal of the Proposed Rule

In response to the proposal, many commenters "nominated" wastes which they believed fit the "special waste," i.e., high volume, low hazard criteria, and therefore should remain excluded from Subtitle C regulation as "processing wastes." Since EPA did not specifically quantify the terms "high volume" or "low hazard" in the proposal, the Agency was unable to determine the status of these additional wastes. As explained in more detail below, EPA tried to infer definitions for these terms from the four wastes listed in the proposal as meeting these two criteria. At that point, it became clear that the selection of a high volume cutoff, and the definition of "low

hazard," raised several major issues. In particular, a volume cutoff only makes sense if the wastes are arrayed in defined, consistent groups, and the data for each group comparable, e.g., they are for the same year, they represent the same type of waste (solid or hazardous), they measure the same thing (per facility or per industry). Since the proposed mining waste reinterpretation did not define "high volume" or "low hazard," nor did it discuss any of the issues associated with these definitions, the public could not discern whether a given waste might qualify for continued exclusion as a high volume, low hazard waste, much less comment on the validity of those criteria. Therefore, the Agency believes it cannot promulgate a final mining waste reinterpretation based on its October 2, 1985 proposal. These various issues raised by the proposal are discussed in more detail below.

A. Grouping

To determine whether a given waste is a high volume waste, it is essential to have rational "groupings" of waste, either by type of industry (e.g., all copper wastes, all lead wastes), by type of waste (e.g., all smelter slags, all emission controls dusts and sludges), or both (e.g., copper slag, emission control dusts and sludges from ferro-chromium production). EPA did not set out any grouping scheme in the proposal. In fact, the wastes EPA believed would remain excluded under the reinterpretation arguably are grouped inconsistently, since phosphorus reduction slag was listed separately, while all the primary metal slags (including copper, lead, and zinc) were lumped together. Obviously the groupings are very significant: once a high volume cutoff is selected, whether a given waste is high volume or not depends on what other wastes, if any, it is grouped with. EPA believes the lack of consistent groupings is the most significant gap in its proposed reinterpretation.

B. Solid Waste v. Hazardous Waste

The proposal considered solid waste (which includes hazardous waste) generation data to determine whether it was high volume. However, EPA could have relied on hazardous waste volumes only. This issue was not discussed in the proposal.

C. Data Base

The mining industry has experienced decline in certain sectors over the past few years. To the extent production is down, the Agency assumes that waste generation is decreased as well.

2.02.2(2)(g)
2.04.12(1)
2.10.1(1)
4.06.1(2)
4.06.2(2)(a)
4.06.2(4)(a)
4.21.4(1)

In addition, Colorado submitted a memorandum on the Division's interpretation of Rule 4.06.1(2).

OSMRE is seeking comment on the adequacy of the amendments in satisfying the requirements set forth under 906.13(b)-(h), and on whether the amendments are consistent with SMCRA and no less effective than its implementing regulations.

IV. Procedural Matters

1. *Compliance with the National Environmental Policy Act:* The Secretary has determined that, pursuant to section 702(d) of SMCRA, 30 U.S.C. 1292(d), no environmental impact statement need to be prepared on this rulemaking.

2. *Executive Order No. 12291 and the Regulatory Flexibility Act:* On August 28, 1981, the Office of Management and Budget (OMB) granted OSMRE an exemption for sections 3, 4, 7 and 8 of Executive Order 12291 for actions directly related to approval or conditional approval of State regulatory programs. Therefore, this action is exempt from preparation of a Regulatory Impact Analysis and regulatory review by OMB.

The Department of the Interior has determined that this rule would not have a significant economic effect on a substantial number of small entities under the Regulatory Flexibility Act (5 U.S.C. 601 *et seq.*). This rule would not impose any new requirements; rather, it would ensure that existing requirements established by SMCRA and the Federal rules will be met by the State.

3. *Paperwork Reduction Act:* This rule does not contain information collection requirements which require approval by the Office of Management and Budget under 44 U.S.C. 3507.

List of Subjects in 30 CFR Part 908

Coal mining, Intergovernmental relations, Surface mining, Underground mining.

Dated: October 2, 1986.

James W. Workman,
Deputy Director, Operations and Technical Services.

[FR Doc. 86-22784 Filed 10-9-86; 8:45 am]

BILLING CODE 4310-05-01

DEPARTMENT OF TRANSPORTATION

Coast Guard

33 CFR Parts 151 and 158

[CGD 85-010]

Control of Residues and Mixtures Containing Oil or Noxious Liquid Substances

Correction

In FR Doc. 86-21591 beginning on page 34332 in the issue of Friday, September 26, 1986, make the following correction:

§ 151.01-1 [Corrected]

On page 34357, in the third column, § 151.01-1(b), in the first line, "are" should read "are not".

BILLING CODE 1002-01-01

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 261

[SWH-FRL-3091-8]

Mining Waste Exclusion; Withdrawal of Proposed Provision

AGENCY: Environmental Protection Agency.

ACTION: Withdrawal of proposed rule; final action.

SUMMARY: Section 3001(b)(3)(A)(ii) of the Resource Conservation and Recovery Act (RCRA) excludes "solid waste from the extraction, beneficiation, and processing of ores and minerals" from regulation under Subtitle C of RCRA (which regulates hazardous waste), pending completion of certain studies by EPA. The Agency interpreted this exclusion to encompass "solid waste from the exploration, mining, milling, smelting, and refining of ores and minerals." 45 FR 76619, November 19, 1980. On October 2, 1985, EPA proposed to narrow the scope of the exclusion as it applies to processing wastes. 50 FR 40292. EPA also proposed to relist six individual waste streams which would no longer have been deemed to be processing (*i.e.*, excluded) wastes. EPA is withdrawing this proposed rule by today's action. The effect of this action is to retain the existing regulation (40 CFR 261.4(b)(7)) along with the Agency's existing interpretation of its scope.

DATE: This proposed rule is withdrawn effective September 30, 1986.

ADDRESS: The address for the EPA RCRA docket is: United States Environmental Protection Agency, EPA

RCRA Docket (Sub-basement) Street, SW., Washington, DC: (202) 475-9327.

FOR FURTHER INFORMATION CO RCRA/Superfund Hotline at (t 9346 or (202) 382-3000 or Dan I (202) 382-2791.

SUPPLEMENTARY INFORMATION

I. History of Mining Waste Un

In section 8002(f) of the Resource Conservation and Recovery Act (RCRA), enacted on October 2, 1980, Congress instructed the Administrator to conduct, in consultation with the Secretary of the Interior, "a comprehensive study on the adverse effects of solid wastes from abandoned surface and underground mines on the environment, including but not limited to, the effects of such wastes on humans, water, air, health, and natural resources."

On December 18, 1978 (43 FR EPA proposed regulations for hazardous waste management under Subtitle C of RCRA. These proposed regulations, among other things, had fewer requirements for a universe of "special wastes" that are generally large volumes, were thought to be a hazard than other hazardous wastes, and were not thought to be amenable to the control technology proposed for hazardous waste treatment, storage and disposal facilities. EPA identified waste from the "extraction, beneficiation, processing of ores and minerals: mining waste, as one such "special waste" under the proposed regulations.

On May 19, 1980, EPA promulgated the final hazardous waste management regulations which applied to, among other things, mining waste. On May 19, 1980 and July 16, 1980, EPA also listed as hazardous eight waste streams from primary metal smelters.

On October 21, 1980, Congress enacted Pub. L. 96-482 which included various amendments to RCRA. Section 8002 was amended to include a paragraph (p), which required the Administrator to study the adverse effects on human health and the environment, if a waste from the disposal and utilization of "solid waste from the extraction, beneficiation, and processing of ores and minerals, including phosphorus and overburden from the mining of uranium ore," and submit a Report to Congress on its findings by October 1983. Section 7 of these amendments (the "Bevill Amendment") amended section 3001 of RCRA to exclude wastes from regulation under Subtitle C of RCRA pending completion of

studies called for in sections 8002(f) and (p).

On November 19, 1980, EPA published an interim final amendment to its hazardous waste regulations to reflect the mining waste exclusion. The regulatory language incorporating the exclusion is identical to the statutory language (except the phrase "including coal" was added). In the preamble to the amended regulation, however, EPA interpreted the exclusion to include "solid waste from the exploration, mining, milling, smelting, and refining of ores and minerals." 45 FR 76118, 76619. For consistency with this interpretation in the November 19, 1980 amendment, the Agency also amended 40 CFR Part 261 to suspend the listings of the eight waste streams associated with smelting as hazardous wastes. 46 FR 4614, January 16, 1981 and 46 FR 27473, May 20, 1981.

In the November 19, 1980 notice, EPA indicated that it intended to reconsider its interpretation of the exclusion, particularly as it applied to smelting and refining wastes. The notice also indicated that any subsequent action to narrow the scope of the exclusion would be a formal rulemaking.

On September 28, 1984, Concerned Citizens of Adamstown, Carroll Manor Civil Association, and the Environmental Defense Fund sued EPA for failure to complete the mining waste studies and Report to Congress required by RCRA sections 8002 (f) and (p). *Concerned Citizens of Adamstown v. EPA*, No. 84-3041, D.C. District Court. EPA explained to the Court that it planned to propose to "reinterpret" the scope of the mining waste exclusion so it encompassed fewer wastes. Therefore, EPA proposed two schedules to the court: one for completing the section 8002 mining waste studies and submitting the Report to Congress, and one for proposing and taking final action on the reinterpretation. On August 21, 1985, the District Court ordered EPA to meet these two schedules.

In compliance with the court order, on December 31, 1985, EPA completed the section 8002 mining waste studies and submitted its Report to Congress on "Wastes from the Extraction and Beneficiation of Metallic Ores, Phosphate Rock, Asbestos, Overburden from Uranium Mining, and Oil Shale." Six months later, as required by RCRA section 3005(b)(3)(C), and by the court order, EPA published its "regulatory determination" regarding the wastes covered by the Report to Congress. In this notice, EPA concluded that regulation of the wastes included in the Report under RCRA Subtitle C is not

warranted at this time. 51 FR 24496, July 3, 1986.

In the meantime, EPA proposed to narrow the scope of the mining waste exclusion (and to relist six wastes as hazardous), according to the schedule in the District Court's order. 50 FR 40292, October 2, 1985. In preparing the proposed mining waste reinterpretation, EPA consulted various sources, but was unable to find any standard, accepted definitions, i.e., "plain meanings," for the terms of the mining waste exclusion, particularly "processing." *Id.* at 40293. Therefore, EPA next looked to the legislative history for this provision. Our review of the legislative history indicated that the exclusion was intended to cover the category of wastes designated as "special wastes," including "solid waste from the extraction, beneficiation, and processing of ore minerals," in EPA's 1978 proposed hazardous waste regulations at 43 FR 58946, December 18, 1978. As mentioned earlier, "special wastes" were thought to be generated in large volumes and to pose less of a hazard than other hazardous wastes. EPA adopted this "high volume, low hazard" concept as the basis for the October 2, 1985 proposed mining waste interpretation. *Id.* at 40924. Specifically, EPA proposed to reinterpret the exclusion so that red and brown bauxite refining muds, phosphogypsum, slag from phosphorus reduction, and slag from primary metal melters would be the only processing wastes covered by the mining waste exclusion because EPA believed these were the only processing wastes which met the high volume, low hazard criteria. *Id.* In the proposal, EPA requested that commenters identify any other processing wastes that met the "special waste" criteria and therefore should remain within the mining waste exclusion.

II. Basis for Withdrawal of the Proposed Rule

In response to the proposal, many commenters "nominated" wastes which they believed fit the "special waste," i.e., high volume, low hazard criteria, and therefore should remain excluded from Subtitle C regulation as "processing wastes." Since EPA did not specifically quantify the terms "high volume" or "low hazard" in the proposal, the Agency was unable to determine the status of these additional wastes. As explained in more detail below, EPA tried to infer definitions for these terms from the four wastes listed in the proposal as meeting these two criteria. At that point, it became clear that the selection of a high volume cutoff, and the definition of "low

hazard," raised several major issues. In particular, a volume cutoff only makes sense if the wastes are arrayed in defined, consistent groups, and the data for each group comparable, e.g., they are for the same year, they represent the same type of waste (solid or hazardous), they measure the same thing (per facility or per industry). Since the proposed mining waste reinterpretation did not define "high volume" or "low hazard," nor did it discuss any of the issues associated with these definitions, the public could not discern whether a given waste might qualify for continued exclusion as a high volume, low hazard waste, much less comment on the validity of those criteria. Therefore, the Agency believes it cannot promulgate a final mining waste reinterpretation based on its October 2, 1985 proposal. These various issues raised by the proposal are discussed in more detail below.

A. Grouping

To determine whether a given waste is a high volume waste, it is essential to have rational "groupings" of waste, either by type of industry (e.g., all copper wastes, all lead wastes), by type of waste (e.g., all smelter slags, all emission controls dusts and sludges), or both (e.g., copper slag, emission control dusts and sludges from ferro-chromium production). EPA did not set out any grouping scheme in the proposal. In fact, the wastes EPA believed would remain excluded under the reinterpretation arguably are grouped inconsistently, since phosphorus reduction slag was listed separately, while all the primary metal slags (including copper, lead, and zinc) were lumped together. Obviously the groupings are very significant: once a high volume cutoff is selected, whether a given waste is high volume or not depends on what other wastes, if any, it is grouped with. EPA believes the lack of consistent groupings is the most significant gap in its proposed reinterpretation.

B. Solid Waste v. Hazardous Waste

The proposal considered solid waste (which includes hazardous waste) generation data to determine whether it was high volume. However, EPA could have relied on hazardous waste volumes only. This issue was not discussed in the proposal.

C. Data Base

The mining industry has experienced decline in certain sectors over the past few years. To the extent production is down, the Agency assumes that waste generation is decreased as well.

Likewise, as lower grade ores are mined, more waste per unit of product is generated. At the same time, production methods are improving such that waste generation rates have decreased in some processes. Clearly, it is necessary to select a baseline (either a single year, or an average over some period of years to reflect fluctuating production levels in the mining industry) for comparing volumes of waste generated. No such baseline was specified in the proposal.

D. Per-Facility v. Industry-Wide Data

In some operations, a single waste may constitute a very large percentage of the total waste generated at that facility, and in that sense, be "high volume" for a given facility. Likewise, a waste may be generated in relatively low volumes at each facility, but there might be numerous facilities producing that waste, so the industry-wide total would be high. However, in the proposal, EPA did not specify whether it would look at data for individual facilities, or only industry-wide data, to determine whether a waste was high volume.

E. Definition of High Volume

The proposed mining waste reinterpretation did not define "high volume," i.e., no volume cutoff was specified. The proposal did list the volume of each of the four wastes that it believed would remain excluded as follows:

Waste	Volume (million metric tons)
Phosphogypsum	47
Primary metal smelter slag	4
Phosphorus reduction slag	3
Bauxite refining muds (red and brown)	2

From this list, one could infer that the lowest volume, i.e. 2 million, was the high volume cutoff. However, EPA has since determined that bauxite refining muds are actually a beneficiation waste, not a processing waste. Therefore, EPA next looked to the two slag wastes for an appropriate cutoff. However, as mentioned above, phosphorus reduction slag was listed separately, while all the primary metal slag (including copper, lead, and zinc) were lumped together. If EPA had listed the primary metal slag separately, the volume for the smallest, and in turn the implied cutoff, might have been substantially lower.

F. Definition of Low Hazard

In the proposed mining waste reinterpretation, EPA did not actually define "low hazard." It was not clear whether EPA was relying on the four hazardous waste characteristics, which

appear in 40 CFR Part 261, Subpart C, or some other definition. Also, the proposal did not explain whether EPA was looking at the hazard associated with a given waste stream, or the proportion of hazardous waste in a group of wastes generated in the same process.

III. Conclusion

By court order, EPA is obliged to take final action by September 30, 1986. At this time, the comments as well as the Agency's own analyses, have convinced us that the proposed reinterpretation cannot be finalized because it did not set out practically-applicable criteria for distinguishing processing from non-processing wastes. Moreover, we are unsure whether such criteria could be developed, given the complexity of these issues. Therefore, the Agency is withdrawing the proposal. As a consequence, EPA's current interpretation of the mining waste exclusion, as set out in the November 19, 1980 rulemaking notice, remains in place. EPA believes this to be a permissible, though by no means the sole permissible, interpretation of the ambiguous statutory phrase "processing of ores and minerals." A second consequence of this action is that the Agency also is withdrawing the proposed relistings of the six individual waste streams. These wastes, under the current interpretation, are deemed to be derived from processing of ores and minerals and so are excluded from regulation under Subtitle C until the requisite section 8002 studies are completed.

Although we are withdrawing the proposed regulation at this time, the Agency is continuing to grapple with the problem of formulating "ground rules" which define the wastes that are covered by the mining waste exclusion, which in turn defines the section 8002 study obligation. In the course of completing its obligation under Section 8002, EPA will attempt to further clarify the scope of the mining waste exclusion. EPA may utilize aspects of this proposal in doing so, and certainly is not stating that the high volume, low hazard principle is inherently unsound. In a more quantified form, this principle could become the basis of such ground rules. The Agency is considering other ground rules as well. In the meantime, the Agency will proceed with additional section 8002 studies addressing processing wastes. The Agency intends to include the six wastes we proposed to relist in the first of these additional section 8002 studies. EPA will not lose any further time in determining the appropriate regulatory regime for these particular wastes, even though we plan

to study further the feasibility of ground rules.

Dated, September 30, 1986.

Lee M. Thomas,

Administrator.

(FR Doc. 86-22831 Filed 10-8-86; 8:45 a.m.)

BILLING CODE 5560-50-M

40 CFR Part 261

[SW-FRL-3093-9]

Hazardous Waste Management System; Proposed Exclusion from Identification and Listing of Hazardous Waste

AGENCY: Environmental Protection Agency.

ACTION: Proposed rule and request for comment.

SUMMARY: The Environmental Protection Agency (EPA) today is proposing to exclude the solid wastes generated at one facility from the list of hazardous wastes contained in 40 CFR 261.31 and 261.32. This action responds to a delisting petition submitted under 40 CFR 260.20, which allows any person to petition the Administrator to modify or revoke any provision of Parts 260 through 265, 124, 270, and 271 of Title 40 of the Code of Federal Regulations, and 40 CFR 260.22, which specifically provides generators the opportunity to petition the Administrator to exclude a waste on a "generator-specific basis" from the hazardous waste list. The effect of this action, if promulgated, would be to exclude certain wastes generated at one particular facility from listing as hazardous wastes under 40 CFR Part 261.

The Agency has previously evaluated the petition which is discussed in today's notice. Based on our review at that time, this petitioner was granted a temporary exclusion. Due to changes to the delisting criteria required by the Hazardous and Solid Waste Amendments of 1984, however, this petition for which we propose to grant an exclusion has been evaluated both for the factors for which the wastes were originally listed, as well as all other factors and toxicants which might reasonably cause the wastes to be hazardous.

DATES: EPA will accept public comments on this proposed exclusion until October 24, 1986. Comments postmarked after the close of the comment period will be stamped "late".

Any person may request hearing on this proposed exclusion by filing a request with Bruce R. Weddle, whose